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Progress Report

Mouse Carcinogenicity Study

Contract No. DA-49-007-MD-789

Project Initiated March 1, 1957

Report Covers Period: March 1, 1957-September 15, 1962

Presented by

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A. Introduction

It is intended that the mixture of irradiated foods will be fed to several different strains of mice for the duration of their life. These mice will be observed grossly and studied histopathologically for the occurrence of tumors.

B. Objective

To determine whether foods sterilized by irradiation are likely to be carcinogenic by oral ingestion.

C. Experimental

1. Sources of Foods Used. The foods used in this experiment were obtained from the following sources:

Tuna	The Atomic Energy Division Phillips Petroleum Co. Idaho Falls, Idaho
Sweet Potatoes Fruit Compote Beef and Corn	U.S. Atomic Energy Commission Savannah River Operations Office Aiken, South Carolina

All of the five food materials which comprise this diet were irradiated at the level of 5.58 megarads.

2. Diets. The diet used consists of the following mixture:

	Per Cent Wet Weight
Beef	21.8
Tuna	14.3
Corn	30.8
Sweet Potato	24.2
Fruit Compote	8.9

The diets were prepared twice a week. The food mixture was blended in a Waring Blender and then cooked for 30 minutes. Sufficient water was added to permit cooking without scorching on the bottom of the pan. After cooking, water was added to bring the diet back to its original weight. The diet was then supplemented by the addition of water-soluble vitamins to the extent that 100 kilograms of diet contain the following amounts of vitamins:

Thiamin	0.60 g
Riboflavin	1.20 g
Pyridoxine	0.40 g
Pantothenate	4.00 g
Niacin	5.00 g
Choline	100.00 g
Inositol	50.00 g
PABA	2.50 g
Biotin	0.01 g
Folic acid	0.01 g
B-12 conc.	0.50 g
Liver conc.	25.00 g
Menadione	0.10 g

The diet was fed daily. Every effort was made to see that the animals were fed an amount which they would completely consume in 24 hours. Any food remaining the following day was removed.

3. Animals. Four different strains of mice were being used in this experiment, Swiss, C3H, C57 black, and DBA. These animals were obtained from several different sources. All animals obtained from any one source were equally divided between the experimental and control groups. The Swiss mice were obtained from Hemlock Hollow Farms.

The C57 mice were obtained from Rockland Farms. Part of the C3H mice were obtained from Jackson Memorial laboratory in Bar Harbor, Maine; part from Rockland Farms; part from Millertown Research Farms; and part were raised at the University of Miami. These later C3H mice were proved to be the healthiest, and for this reason, a fourth replicate was started on May 1st, 1959, and a fifth on July 30, 1959, a sixth on August 10, 1959, a seventh on November 2, 1959, and an eighth on December 22, 1959, utilizing more of these animals. The DBA mice were also raised locally. A ninth replicate was started February 22, 1960, of Swiss mice obtained from the Laboratory Animals Corp., which were claimed to be samonella-free. The tenth replicate of the same mice was started April 27, 1960.

4. Management. The mice were kept in a separate room in which they were housed in groups of ten in stainless steel mice boxes. Sterile "Sanocel" was used as letter. The animals were observed daily for occurrence of tumors, disease, or death.

The foods were stored at room temperature for a minimum of three and a maximum of nine months before feeding.

D. Results

All replicates of this experiment have now been completed. There is as yet no apparent indication of any meaningful increase in tumor incidence associated with the feeding of a irradiated food in any of these replicates.

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However, final evaluation of the tumor incidence in the mice fed an irradiated diet as compared to the mice fed a control diet will wait integration of the results from all of the replicates and a final confirmation of the presence of tumors by histopathological examination.

E. Summary and Conclusions

All of this experiment has been completed. Up until the present no indications of a significant increase in tumor incidence which could be ascribed to the feeding of the irradiated food has been observed.

Histopathological examination of the tumors and tumor-like lesions which have been found thus far in the experiment has been completed. Final integration and statistical analysis of the results obtained in this experiment is underway. It is expected that the final report will be completed and submitted within the next few months.

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